Faster, Higher, "Softly" Stronger: The Impact of Soft Power on the Choice of Olympic Host Cities*

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Abstract: This article statistically estimates the impact of different countries' soft power on the results of Olympic Games bidding in the post-Cold War era. All bid results for the Olympic Summer and Winter Games between 1990 and 2011 are analyzed by panel regression methods. The empirical results reveal that sporting success, higher transparency, lower CO_2 and particle emissions, and faster economic growth are likely to increase the probability of a bidding country winning an Olympic bid. These results have several implications regarding the impact of soft power on choice of Olympic host site. First, if a country has a high number of Olympic gold medalists, this could attract International Olympic Committee (IOC) members and influence their decisions. Second, a country's ethical reputation is likely to persuade the IOC to choose it as the rightful host country. Third, the environmental record of a country may also be regarded as a desirable value by IOC members, who prefer a 'Green Games' ecological legacy.

Keywords: soft power, Olympic Games, bidding, sports diplomacy, panel regression analysis

INTRODUCTION

Countries compete with one another in order to secure limited resources. As human civilization has evolved from simple systems to complex ones, many countries have

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risen and fallen as a consequence of international competition. In ancient times, powerful military empires established colonies all over the world, whereas contemporary "empires" in the globalization era exploit underdeveloped followers with "invisible hands". How does one country defeat another in the global survival game? Although "hard power," wielded through either inducements or threats, is still essential for the survival of the fittest in the arena of traditional security and military order, recent social and environmental changes in global competition (such as interest in quality of life or climate change) seem to raise the importance of "soft power," which Nye (2004, p. 10) defined as "the ability to get what you want through attraction rather than coercion or payments." While there is a voluminous academic and policy literature on soft power, this topic is theoretically underspecified (Sohn, 2011), and little empirical or quantitative research has been conducted into how and to what extent soft power influences international relations in global competition. Does soft power matter at all, or is it simply "much ado about nothing?"

This paper explores soft power's presence in and impact on international competition by providing statistically analyzed empirical evidence. Specifically, it analyzes the process by which countries compete with one another for the privilege of hosting a major global sporting event: the Olympic Summer or Winter Games. Even though the Olympics and international sports are an important field of global interaction between political actors (Cottrell & Nelson, 2011), they remain underexamined from the perspective of international relations (Cha, 2009). The importance of soft power has been emphasized in the area of sports diplomacy (Cha, 2009; Chappelet, 2008; Chappelet and Kubler-Mabbott, 2008; Houlihan, Bloyce, & Smith, 2009), but has not yet been tested empirically.

The article is organized as follows. In the next section, the theoretical and historical background of soft power and the selection of Olympic host cities are described. Factors that can influence the International Olympic Committee (IOC)'s vote are presented in a review of the relevant literature and of Olympics history. The third section explains in detail the methodology used to operationalize the main concepts and construct research hypotheses, and suggests models for analyzing the IOC's voting patterns. The fourth section analyses the results of panel data regressions. In the final section, factors that had significant effects in the models are discussed and conclusions are drawn regarding the impact of soft power on the Olympic bids, with a summary of the principal findings.

LITERATURE REVIEW

Soft Power: A Popular but Atheoretical Concept?

Soft power, a term coined two decades ago by Joseph Nye, is the ability of a country to exert its influence on the actions of another through nonmilitary means such as persuasion or attraction rather than coercion (Nye, 1990). According to Nye (2008), a country can wield power in three ways: threat of force (the stick), inducement with payments (the carrot), or shaping the preferences of others to get them to want the same outcomes. Nye (2004) envisioned a country's soft power, as opposed to its hard (military and economic) power, to be a new element of international politics following the end of the Cold War. He pointed out that a country's soft power rests primarily on three sources: its culture (in places where it is attractive to others), its political values (when it lives up to them at home and abroad), and its foreign policies (when they are seen as legitimate and having moral authority) (Nye, 2004, 2008). As a component of soft power, culture means not only high culture like literature, art, and education, which appeals to elites, but also television, cinema, pop music, and sports, consumed in mass entertainment markets. Political values such as democracy, justice, equality, and transparency strongly affect the people's preferences. A country's foreign policy also affects its soft power since it influences the attitudes, perceptions, and images that foreign citizens have of that country.

Although Nye's arguments about the importance and role of soft power have had an enormous impact on the theory and practice of global politics, this has taken place without any real agreement as to what soft power actually means, precisely how it works, and what it takes to deploy it effectively (Kroenig, McAdam, & Weber, 2010). Thus, in order to attain a more rigorous theoretical position and be deployed as a tool of evidence-based policy-making, the concept of soft power needs to be scrutinized and transferred from the world of abstract theory to a practical, concrete, and grounded reality. In other words, more historical and empirical evidence is required for soft power's proponents to back up their claims.

Nye (2004) proposed a "three-dimensional chessboard" model, which divides world politics into three closely interdependent dimensions of influence: military at the top, economic in the middle, and soft power at the bottom. However, is there any realm of international relations in which soft power affects interactions—that is, collective patterns of ideas and behaviors—between state and/or nonstate actors? Or, to follow the hard-core realism proponents' argument, is soft power an illusion? Do all competitions between countries merely end up as zero-sum games in which the super-powerful hegemon wins all? Is there really such a thing as soft power?

In order to establish the existence of soft power and its impact on international competition, both soft- and hard-power factors need to be included in an analytical model, so that while one factor is controlled, the influence of the other can be estimated. However, past research on hard and soft power, which used qualitative methods such as case studies, often omitted one of the two variables from analysis, which might threaten causal inference with confounding factors or spurious effects. This study is one of the first attempts to capture both hard and soft power by employing quantitative analysis. To investigate the explanatory power and concrete applicability of soft power theory, the present study looks at the influence of soft power on the Olympic competition, which involves international politics (Hoffmann, Ging, & Ramasamy, 2002).

Soft Power and the Olympic Games Bids

The history of Olympic bidding, in which cities and countries compete to host the largest global sporting event in the world, reveals clues to how a country's soft power is exerted. In the Olympic system (Chappelet & Kübler-Mabbott, 2008), the IOC allocates exclusive rights to host the Olympics seven years in advance in a rigorous election process that involves a series of votes by IOC members, in which the city with the fewest votes is excluded until one achieves an absolute majority. Although the games are officially awarded to a city (for example, Sochi, Russia, for the Winter Games of 2014 and Rio de Janeiro, Brazil, for the Summer Games of 2016), bidding to host the Olympics is not merely a city affair, but also a fierce contest between bid cities' home countries, in which they deploy their hard and soft power. According to the Olympic Charter (IOC, 2011b, pp. 72-73), "Should there be several potential applicant cities in the same country to the same Olympic Games, one city only may apply, as decided by the National Olympic Committee of the country concerned"; "the national government of the country of any applicant city must submit to the IOC a legally binding instrument by which the said government undertakes and guarantees that the country and its public authorities will comply with and respect the Olympic Charter". Therefore, this paper focuses on the competition to host the Olympic Games at the country level.

Most scholarship on Olympic bidding success has been carried out using qualitative methods such as case studies and anecdotal analyses (e.g., Carey, Mason, & Misener, 2011; Haugen, 2005; Merkel & Kim, 2012; Persson, 2002; Rowe, 2012; White, 2011); only a limited number of quantitative studies have tried to investigate the determinants of host city choices of the IOC (Feddersen, Maennig, & Zimmermann, 2008; Poast, 2007). Poast (2007) analyzed all Olympic bids between 1959 and 2005 using rank-ordered conditional logit estimation. In his analysis, the IOC showed a statistical tendency to base its decision on the economic vitality of a bid city's home country and

on the need to maintain continental diversity. Feddersen et al. (2008) examined the probability of success of cities' bid campaigns by using quantified determinants for a total of 48 bids for the Summer Olympic Games between 1992 and 2012. Using a multivariate binary logistical regression, they found that the distance of sporting venues from the Olympic Village, which most bid experts would consider as a secondary factor, as well as local temperature and the unemployment rate in the bidding city's home country were significant determinants in explaining the IOC's decision. Although these empirical studies have made a remarkable contribution to understanding the determinants of Olympic bid winners, no research has yet been conducted on a theoretical framework. In order to bridge this scholarly gap between empirical work and theoretical foundations, this study attempts to apply the soft power theory to the Olympic bidding process.

On the basis of the existing literature and the theory of soft power, several hypothetical rationales could explain the IOC's voting behavior with regard to a bid country's soft or hard power. First, one can hypothesize that if one bid country has more economic power than the others, the IOC will vote for it due to the expected financial benefits in terms of television broadcasting rights and official Olympic sponsorships (Poast, 2007). After the commercially successful Los Angeles Olympics in 1984 and the challenging Centennial Games in Atlanta in 1996, the IOC realized that regional and national governments must be more involved in the staging of the games, because their size and cost has increased tremendously (Chappelet, 1996). This "Olympic gigantism" and strong commercialization of the games can inhibit poor countries from competing to host the games and favor the choice of countries that are rich enough to cover the enormous expenditure and that have more profitable markets. Thus, countries with larger economies or faster economic growth may use their substantial financial resources as the "carrot" to win the vote.

Second, political rationales can also affect the IOC's decision. The Cold War years, during which sports was a vehicle to demonstrate the superiority of two confronting ideologies, communism and capitalism, inevitably saw block voting by Western, Eastern, and Third World IOC members. In particular, the Eastern bloc tried to host the Olympics and did so in Moscow in 1980 and Sarajevo, Yugoslavia, in 1984. It also heavily protested the awarding of the 1988 games to Seoul in 1981. Other factors included the long-running South African apartheid issue and boycotts brought about by events such as the Soviet invasion of Afghanistan (Toohey & Veal, 2007). However, in the post-Cold War era, it is less likely that countries' strong military power will affect the IOC's decision. For example, Chicago was eliminated in the first round of voting for the 2016 games despite the presence of the US president on the day of the vote.

In contrast with these hard-power-related explanations, which are based on a model of rational actors who are embedded within a country's economic or political interests, value-based rationales emphasize that the ideals of the Olympic movement (Olympism[1]) can influence the IOC's choice of host city, as Pierre de Coubertin, the founder of the modern Olympics, once dreamed. Accordingly, it is critical for bid cities and countries to obtain a high level of Olympic legitimacy in the eyes of IOC members by maintaining the integrity of Olympic values.

For example, countries can contribute to the Olympic movement not only by participating in the Olympics and other sports events, but also by their athletes' performance in the games. Strong sports performance becomes a soft-power asset that benefits the country, because a positive reputation in sports can cement a country's global status and position in world politics (Cha, 2009). Thus, a country's sporting success, roughly measured by the number of its Olympic gold medals, can be both appreciated for its enhancement of the Olympic movement and exerted as an effective lobbying influence in the field of international sports diplomacy. In particular, promotion of the contributions of internationally recognized Olympic champions has been a widely used strategy in the Olympic bid process. Therefore, if a country has a high number of Olympic gold medalists, this could impress International Olympic Committee members and influence their decisions. For instance, double Olympic champion Sebastian Coe chaired the London 2012 bid committee.

The fundamental principles governing the Olympic system include transparency, democracy, accountability, autonomy, and social responsibility (Chappelet and Kubler-Mabbott, 2008). Thus, the Olympics always involve a deep interrogation of the ethical worthiness of the hosts (Rowe, 2012, p. 288). In the context of soft power, a good image and ethical reputation for adhering to the Olympic philosophy and principles could persuade IOC members to vote in favor of a country. On the other hand, the IOC could consider widespread corruption in the bidding country as a sign of administrative inefficiency and political instability, because members of the national Olympic organizing committee interact closely with governmental officials (Poast, 2007).

The IOC's consideration of ethical issues appears to be reinforced by the more transparent bid procedures that were adopted in 1999 and the revelation of the unethical practices of the Salt Lake City 2002 bid committee. The old practice, in which each

1. Olympism has been described as "a philosophy of life, exalting and combining in a balanced whole the qualities of body, will and mind. Blending sport with culture and education, Olympism seeks to create a way of life based on the joy of effort, the educational value of good example, social responsibility and respect for universal fundamental ethical principles" (IOC, 2011b, p.11).

bid candidate enticed as many IOC members as possible to visit the attractions of its proposed Olympic sites and facilities, caused side effects involving excessive giving of gifts and other enticements to IOC members and their families, which in turn led to the lobbying crisis of 1998-1999 and subsequent reforms (Toohey & Veal, 2007). As a consequence, the current IOC guidelines regulate contacts between candidates and IOC members, including related organizations (see IOC, 2005). One might hypothesize that these more transparent decision-making processes are likely to lead the IOC to choose the host according to bidding countries' transparency and ethical reputation.

Regarding ecological concerns, the IOC adopted the environment as the "third pillar" of the Olympic ideology in 1994 and adopted Agenda 21, a series of sustainable development principles for the Olympic movement, five years later (Chappelet, 2008). It also added a new, 13th mission to the Olympic Charter, seeking "to encourage and support a responsible concern for environmental issues, to promote sustainable development in sports and to require that the Olympic Games are held accordingly" (IOC, 2011b, p. 15). These new principles of environmental protection are not simply a sign of the times but also a positive legacy of the Olympic Winter Games since the 1990s (Chappelet, 2008). Thus, by aspiring to showcase the Green Games as an ecological legacy of the Olympics, the IOC may prefer countries with a stronger environmental record to those emitting harmful pollutants.

METHODOLOGY

Hypotheses, Data, and Measures

Based on the theoretical and historical background discussed above, the main hypothesis of the study was constructed as follows: assuming that countries' hard-power factors are equal, their soft power can affect the result of bidding to host the Olympic Games.

Another factor that the IOC appears to take into account, as earlier studies (Feddersen et al., 2008; Poast, 2007) have pointed out, is the continental diversity of the host countries.[2] The Olympic Summer Games have been held on different continents for each consecutive Games since the 1952 Olympics in Helsinki, Finland (Feddersen et al., 2008, p. 177) and this continental rotation has been also true of the Olympic Winter Games since the 1968 Olympics in Grenoble, France. On only one occasion since 1968

2. Five continents have continental associations of national Olympic committees, corresponding to the five Olympic rings: Africa, America, Asia, Europe, and Oceania (IOC, 2011b, p. 9).

were the Winter Games awarded to countries on the same continent twice in a row: in 1992 and 1994 (Albertville, France, and Lillehammer, Norway) (Poast, 2007, p. 82).

As demonstrated in table 1, the Summer and Winter Games were never awarded to the same continent twice in a row between 1990 and 2011. However, in the list of the overall Olympics (both Summer and Winter), two exceptions can be found (Athens 2004 and Turin 2006, London 2012 and Sochi 2014). Thus, it is hypothesized that continental rotation affects the IOC's choice of host city.

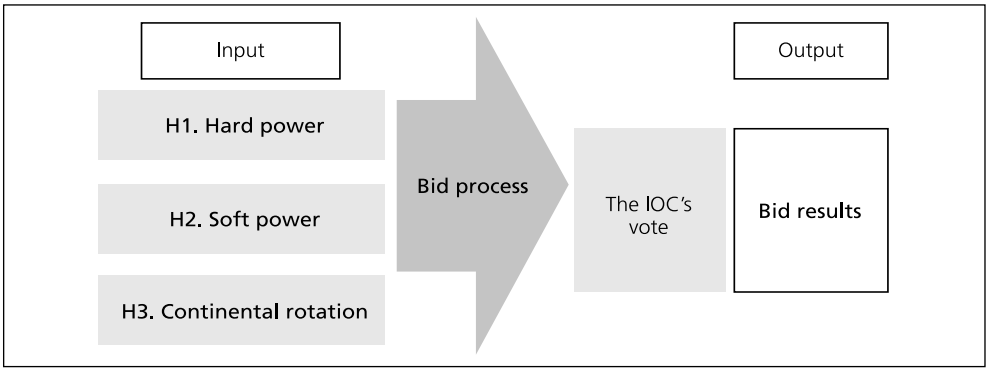
Table 1. Continental Location of Olympic Games Host Cities, 1990-2011

Olympics	Year chosen	Year held	Host country	Host city	Continent
Summer Games	1990	1996	United States	Atlanta	America
	1993	2000	Australia	Sydney	Oceania
	1997	2004	Greece	Athens	Europe
	2001	2008	China	Beijing	Asia
	2005	2012	United Kingdom	London	Europe
	2009	2016	Brazil	Rio de Janeiro	America
Winter Games	1991	1998	Japan	Nagano	Asia
	1995	2002	United States	Salt Lake City	America
	1999	2006	Italy	Turin	Europe
	2003	2010	Canada	Vancouver	America
	2007	2014	Russia	Sochi	Europe
	2011	2018	Korea	PyeongChang	Asia

Source: IOC (2011a).

Figure 1 illustrates the analytical framework used to estimate the key factors affecting the choice of Olympic host cities.

Figure 1. Influence of Key Factors on Olympic Games Bid Results



Therefore, this study proposed three research hypotheses:

Hypothesis 1: A country's hard power has a significant impact on the result of its bid to host the Olympic Games.
Hypothesis 2: A country's soft power has a significant impact on the result of its bid to host the Olympic Games.
Hypothesis 3: The continental rotation rule has a significant impact on the result of its bid to host the Olympic Games.

To test the hypotheses, quantitative methods were employed, because large-n studies of the IOC's host city selections can identify systematic tendencies (Poast, 2007, p. 76) and provide statistically generalized statements concerning the relationships between a country's soft power and the choices made by the IOC.

The data set was constructed from all bidding countries for the Olympic Summer and Winter Games in the post-Cold-War era (between 1990, the first bidding year after the 1989 fall of the Berlin Wall, and 2011). Thus, the estimates are based on a total of 86 bidding cities/countries, consisting of 48 Summer Games and 38 Winter Games bids. An overview of the bid countries and selected cities for each Olympic Games is provided in the Appendix.

Hard power is relatively easy to measure in terms of a country's military and economic power, as originally defined by Nye (1990). However, soft power is an intangible and multidimensional concept that is inherently difficult to quantify. Furthermore, its relational nature makes cross-national comparisons difficult, because the perceptions of one country may vary substantially from those of another (McClory, 2010). Several pioneering works have measured countries' soft power by creating composite indexes of attributes or resources. For instance, Whitney and Shambaugh (2008) produced an index to measure five domains of soft power—economic, cultural, diplomatic, human capital, and political—using a questionnaire that surveyed respondents in China, Japan, Korea, Vietnam, Indonesia, and the United States.

McClory (2010) also developed an index, which used a mixture of objective and subjective indicators to measure 26 countries' soft power across five categories (business/innovation, culture, government, diplomacy, and education). These suggest that soft power can be measured using both subjective indicators, employing survey methods to directly investigate people's perceptions or opinions of a country's image or reputation (soft data), and objective indicators, making use of officially published administrative data (hard data).

This study measured countries' soft power over the IOC mainly using objective indicators provided by international organizations such as the World Bank, for two reasons. First, although time-series survey data on each country after the Cold War

period are needed for the current study, IOC members' perceptions of candidate countries have never been measured by longitudinal survey methods (lack of data availability). Second, official data measured by international standards can facilitate cross-country comparison, which may avoid the "subjectivity" limitations of survey methods based on individual perceptions (greater data credibility).

Based on Nye (2004)'s main constituent pillars of culture, political values, and foreign policy, this study assesses a country's soft power over the IOC across three dimensions, with a particular focus on the characteristics of the field of sports, because soft power depends on context, as Nye stressed. First, a country's sporting success, as represented by national results in the Olympic Games, could be recognized by the IOC. For example, world-popular sports stars who have won gold medals in the Olympics could influence IOC members' decision-making concerning host country selection. Second, the ethical dimension of soft power can be defined by relying on the argument that it is exercised "when a country's culture includes universal values and its policies promote values and interests that others share" (Nye, 2004, p. 11). It could thus be hypothesized that a nation's ethical image is likely to persuade the IOC to choose it as the rightful host country. Third, a country's environmental sustainability could be regarded as a desirable value by the IOC, which seeks to host environmentally friendly Olympics. The more efforts a country makes to protect the environment, the more attractive it is to the IOC.

Models, Variables, and Analytical Methods

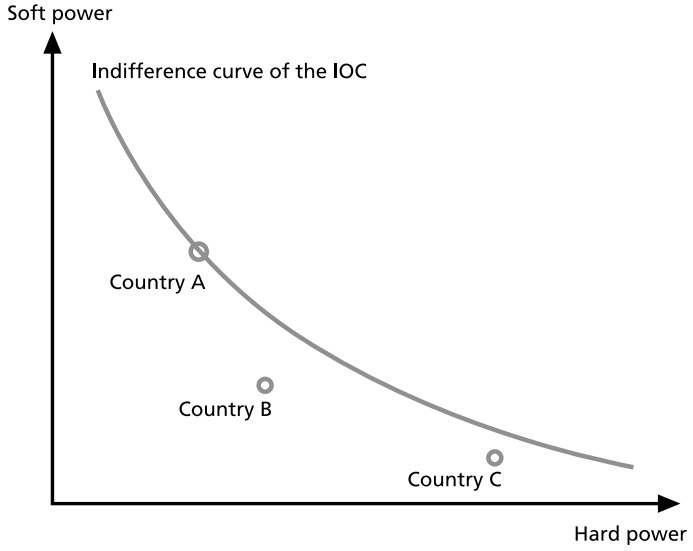
Like two sides of a coin, the impact of a country's soft power on its Olympic bid depends on the extent to which the IOC prefers a candidate country to have more soft power. Which countries are more likely to be preferred by the IOC as the host venue in terms of their soft or hard power?

It is hard to predict how IOC members will vote, as voting is by secret ballot (Persson, 2002, p. 27). In addition, they are well known for voting on the basis of political and personal judgment (Chappelet & Kubler-Mabbott, 2008, p. 87). However, past voting results of the IOC provide clues that enable estimation of members' preferred host countries in terms of hard and soft power, assuming that not all voting members of the IOC are irrational, emotional, or corrupt. The few bribery cases in Olympic history (particularly the lobbying crisis of 1998-1999) do not prove that all IOC members engage in corrupt transactions of votes with lobbyists. It is more reasonable to assume that most members of the IOC vote based on their own beliefs or systems of preferences.

In this respect, this study made several assumptions regarding the IOC's preferences

and voting behaviors in order to construct estimation models. In line with revealed preference theory, which has been developed since Samuelson's (1938) seminal paper, the IOC's unobserved preferences are assumed to be revealed by their observed voting results, and their voting behaviors regarding host city choice are assumed to be rational and consistent. Figure 2 illustrates a model of the IOC's host country selection in which members vote for candidate countries whose combinations of hard and soft power they prefer.

Figure 2. A model of the IOC's host country selection



Note: Indifference curve is a graph showing different combinations of bid countries' hard and soft power which render indifferent or the same level of utility (satisfaction) for the IOC's choices of host countries. That is, at each point on the curve, the IOC has no preference for one country over another.

Regarding the dependent variable, the IOC's preferences for Olympic hosts were measured in three ways in order to ensure the robustness of the analysis. First, *host success* is a dummy variable that represents the IOC's final decision, assigning the value of 1 if a country is chosen as host and 0 if not. Second, *IOC rank* represents the IOC's ranking of the bidding countries in the year *t*. For convenience of interpretation, the reciprocal value of the variable is used. Third, *IOC votes* measures how many votes a candidate country obtained in all bidding rounds in a given year *t*. The IOC's preference is assumed to be reflected in the number of votes a country gets, as calculated by the ratio of individual members' votes to overall votes in a year *t*. The values

of these variables are shown in the Appendix.

The independent variables associated with soft power are defined in ethical, environmental, and sporting dimensions. *Transparency* represents a country's soft power in terms of ethics. Poast (2007) and Feddersen et al. (2008) state that this can be measured by the Corruption Perceptions Index produced by Transparency International; this ranges from 0 to 10, with 0 indicating a country with an extremely and pervasively corrupt government, and 10 indicating the opposite. The environmental sustainability of each country is measured by two environmental indexes: *CO_2 emissions* and *particle emissions* measure a country's production of air pollutants such as CO_2 (Carbon dioxide) and PM10 (per cubic meter 10 or particles less than 10 microns in diameter) per GDP. These data were collected from the World Bank's World Development Indicators. *Sporting success* refers to the number of gold medals won in the previous Summer and Winter Olympic Games.

To measure hard-power factors, *GDP* and *GDP growth* were included in the models to represent a country's overall economic performance and emerging economic trends, and *military expenditure* was used as a proxy for military power. In addition, the estimation models included *continental rotation* as a dummy variable, assigning the value of 1 if a bidding country is located on a different continent from the host country of the next upcoming Summer and Winter Olympics, and 0 if it is on the same continent.

Therefore, the following econometric model was proposed:

$$\text{Preferences for host } (\textit{host success, IOC rank, IOC votes})_{it} = \beta_0 + \beta_1\, \textit{sporting success}_{it} + \beta_2\, \textit{transparency}_{it-1} + \beta_3\, CO_2\, \textit{emissions}_{it-1} + \beta_4\, \textit{particle emissions}_{it-1} + \beta_5\, \textit{GDP}_{it-1} + \beta_6\, \textit{GDP growth}_{it-1} + \beta_7\, \textit{military expenditure}_{it-1} + \beta_8\, \textit{continental rotation}_{it} + \varepsilon_{it}$$

To clarify, *i* denotes each bidding country for *t*, which is the year of the IOC vote. Several soft- and hard-power-related variables receive values from the year prior to the vote (t-1), on the assumption that the IOC's decisions are based on candidate countries' status during the previous year. Table 2 summarizes all variables used in the models, and table 3 presents the descriptive statistics for all variables and correlations between them.

Table 2. Variables Used in the Models

Name	Measure	Data source
Dependent variables		
Host success	Final decision on the host site (dummy)	International Olympic Committee
IOC rank	Bid's ranking by the IOC (reciprocal)	International Olympic Committee
IOC votes	Ratio of votes that a bid country gets to overall votes	International Olympic Committee
Independent variables		
Sporting success	Number of gold medals won in the last Summer and Winter Games	International Olympic Committee
Transparency	Perceived government corruption in the previous year to the bid (scale of 0 to 10)	Corruption Perceptions Index
CO_2 emissions	Emitted carbon dioxide per GDP in the previous year to the bid	World Development Indicators
Particle emissions	Emitted PM10 per GDP in the previous year to the bid	World Development Indicators
GDP	Real GDP (PPP, constant 2005 $) in the previous year to the bid	World Development Indicators
GDP growth	Growth rate (%) of real GDP (PPP, constant 2005 $) in the previous year to the bid	World Development Indicators
Military expenditure	Military expenditure ($) in the previous year to the bid	World Development Indicators
Continental rotation	Different continental location from the host country of the next upcoming Summer/Winter Olympics (dummy)	International Olympic Committee

Note: Several imputations were conducted for absent values for transparency (due to the Corruption Perceptions Index not being published before 1995).
GDP = gross domestic product; PPP = purchasing power parity.

Table 3. Summary Statistics and Pearson's Correlations

	Observations	Mean	Standard deviation	Minimum	Maximum	GDP	GDP growth	Military expenditure	Sporting success	Transparency	CO_2 emissions
Host success	86	0.14	0.35	0.00	1.00						
IOC rank	86	0.34	0.30	0.09	1.00						
IOC votes	86	0.14	0.18	0.00	0.66						
Continental rotation	86	0.43	0.50	0.00	1.00						
GDP	82	1.57e+12	2.41e+12	1.72e+10	1.32e+13						
GDP growth	86	4.11	4.11	-12.57	25.48	-0.14					
Military expenditure	81	4.81e+10	1.08e+11	7.38e+08	5.75e+11	0.95	-0.13				
Sporting success	86	10.91	13.03	0.00	56.00	0.71	-0.30	0.69			
Transparency	82	5.80	2.31	1.90	9.60	0.18	-0.26	0.16	0.00		
CO_2 emissions	81	0.49	0.31	0.16	1.73	0.02	0.19	0.08	0.33	-0.41	
Particle emissions	85	33.87	20.31	12.45	124.84	-0.10	0.32	-0.11	-0.13	-0.49	0.23

In order to estimate the proposed econometric models, and given the panel nature of the data and characteristics of the dependent variables, the time-series cross-national aggregate level data sets were grouped by overall and summer/winter periods and regressed individually by a variety of panel data regression methods, including panel logit/probit models (against the dependent variable *host success*), fixed-effects and random-effects models (against *IOC rank* and *IOC vote*). These panel regression methods can rule out the omitted variable bias caused by unobserved characteristics of individual countries (Baltagi, 2008; Cameron & Trivedi, 2009; Wooldridge, 2002). For instance, with the fixed-effects model, the effects of unobservable factors such as a bid country's lobbying strategies can be eliminated if these are assumed to be country-specific and time-invariant. In addition, the Hausman (1978) specification test was performed to choose a data-corresponding model from the fixed- and random-effects models.

EMPIRICAL RESULTS

Descriptive Analysis

Table 4 illustrates the hard- and soft-power-related indicators (from the year prior to the bidding) of all Olympic host countries between 1990 and 2011. In terms of GDP and military expenditure, the United States was the largest host and Greece the smallest; China had the fastest GDP growth and Australia the slowest. In terms of sporting success, the United States won the most Olympic gold medals and Brazil the fewest. With respect to the level of transparency, Canada had the highest and Russia the lowest score. Regarding environmental efforts, the best records were held by Brazil (for CO_2 emissions) and the United Kingdom (for particle emissions), while China emitted the most of both pollutants.

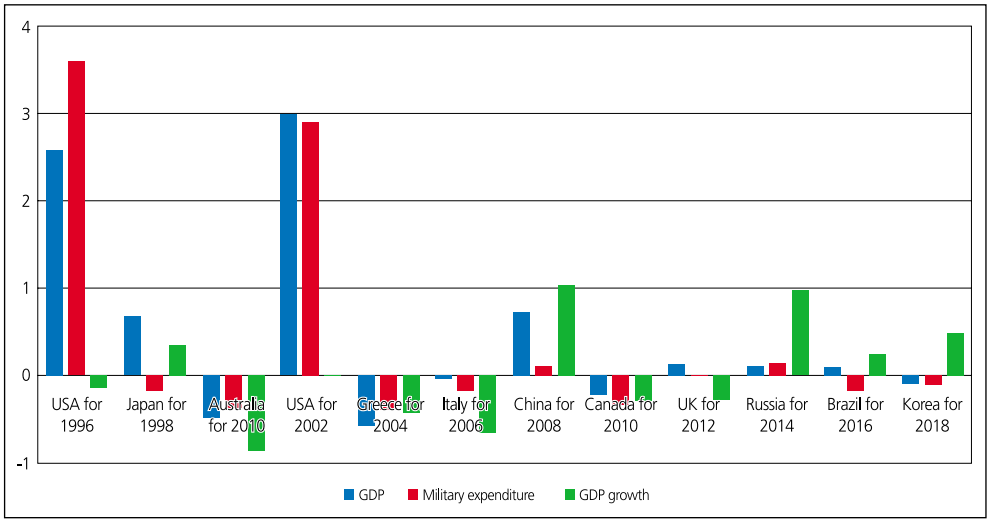
Next, in order to compare the hard and soft power of countries with successful and unsuccessful bids, all related variable values were standardized with each variable's mean and variance being 0 and 1 (z-transformation). Figures 3 and 4 illustrate the patterns of the Olympic host countries' hard and soft power based on these standardized values. With regard to hard power, most Olympic host countries had relatively low levels among all bidding countries between 1990 and 2011 (with the exception of the United States and China). However, the Olympic host countries had higher levels of soft power compared with their levels of hard power.

Table 4. Olympic Host Countries' Hard and Soft Power (1990-2011)

Year chosen	Year held	Host country	Host city	*GDP*	*Military expenditure*	*GDP growth*	*Sporting success*	*Transparency*	*CO_2 emissions*	*Particle emissions*
1990	1996	United States	Atlanta	7,820	437	3.56	38	7.79	0.63	30.35
1991	1998	Japan	Nagano	3,230	29	5.57	4	6.72	0.36	42.18
1993	2000	Australia	Sydney	410	9	0.58	7	8.8	0.72	20.58
1995	2002	United States	Salt Lake City	8,800	363	4.11	43	7.79	0.59	27.44
1997	2004	Greece	Athens	193	6	2.36	4	5.01	0.42	53.15
1999	2006	Italy	Turin	1,500	29	1.40	15	4.6	0.29	33.45
2001	2008	China	Beijing	3,370	63	8.40	28	3.1	1.01	85.46
2003	2010	Canada	Vancouver	1,050	12	2.92	10	9	0.50	20.10
2005	2012	United Kingdom	London	1,930	47	2.95	10	8.6	0.28	14.58
2007	2014	Russia	Sochi	1,840	66	8.15	35	2.5	0.85	17.36
2009	2016	Brazil	Rio de Janeiro	1,840	28	5.16	3	3.7	0.21	20.83
2011	2018	Korea	PyeongChang	1,320	36	6.16	19	5.4	0.45	25.42
Average of all bidding countries				1,570	48	4.11	10.91	5.83	0.49	33.87

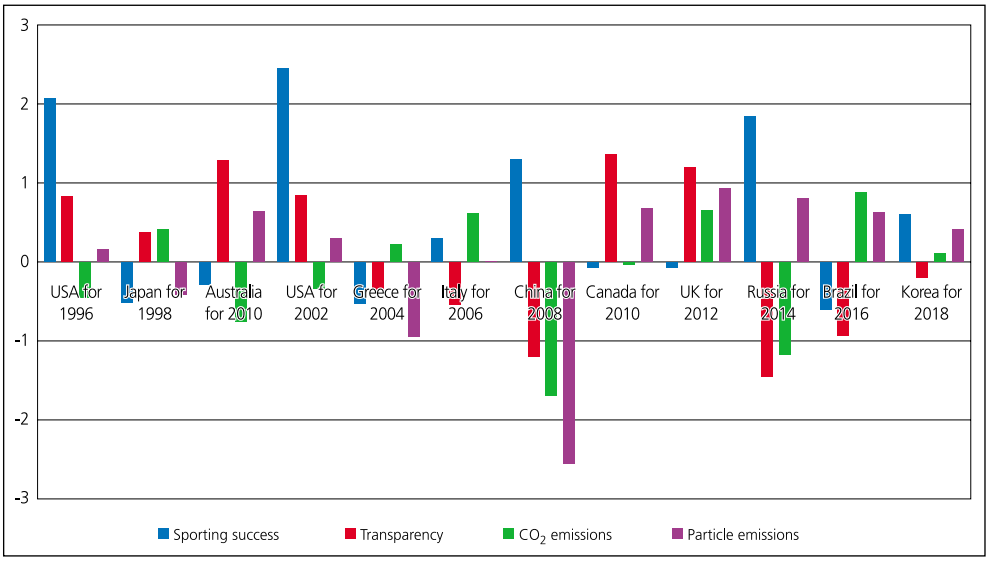
Note: Numbers for GDP and military expenditure represent billions of dollars.

Figure 3. Patterns of Olympic Host Countries' Hard Power (1990-2011)



Note: Values for each variable were standardized as z-scores and displayed on the vertical axis. In order to be directionally consistent with the other indicators, values of CO2 and particle (PM10) emissions were reversed with opposite signs.

Figure 4. Patterns of Olympic Host Countries' Soft Power (1990-2011)



Note: Values for each variable were standardized as z-scores and displayed on the vertical axis. In order to be directionally consistent with the other indicators, values of CO2 and particle (PM10) emissions were reversed with opposite signs.

Multivariate Analysis

Table 5 presents the results of the multivariate analysis. First, in all Olympic Games bids between 1990 and 2011, the significant independent variables were *transparency* and *GDP growth*, at around 10 percent significance level (in the model with the dependent variable of *IOC rank*), *sporting success* and *particle emissions*, below the 10 percent significance level (in the *IOC votes* model), and *continental rotation* at the 5 percent significance level (in the *host success* model). Second, in Summer Games bids from 1990-2009, *particle emissions* was negative and significant below the 10 percent significance level in the *IOC votes* model, while *continental rotation* was positively significant for *host success*. Third, in Winter Games bids from 1991-2011, most variables (except *transparency*) associated with soft power, such as CO_2 *emissions*, *particle emissions*, and *sporting success*, as well as hard-power-related *GDP growth*, were significant below the 10 percent and 5 percent significance levels in the *IOC rank* and *IOC votes* models. *Continental rotation* was positively significant below the 10 percent significance level in the *host success* model.

Table 5. Panel Regression Results for Olympic Games Bids

	All bids, 1990-2011						Summer bids, 1990-2009			Winter bids, 1991-2011		
Model	Panel logit	Panel probit	Fixed effects	Random effects	Fixed effects	Random effects	Panel probit	Fixed effects	Fixed effects	Panel logit	Random effects	Random effects
Dependent variables	*Host success*	*Host success*	*IOC rank*	*IOC rank*	*IOC votes*	*IOC votes*	*Host success*	*IOC rank*	*IOC votes*	*Host success*	*IOC rank*	*IOC votes*
Independent variables	Coef. (z-stat)	Coef. (z-stat)	Coef. (t-stat)	Coef. (z-stat)	Coef. (t-stat)	Coef. (z-stat)	Coef. (z-stat)	Coef. (t-stat)	Coef. (t-stat)	Coef. (z-stat)	Coef. (z-stat)	Coef. (z-stat)
GDP	0.00 (0.77)	0.00 (0.75)	-0.00 (-0.78)	0.00 (0.60)	-0.00 (-0.41)	0.00 (0.60)	-0.00 (-0.23)	-0.00 (-1.58)	-0.00 (-1.17)	0.00 (1.55)	0.00 (1.57)	0.00 (0.57)
GDP growth	0.10 (1.29)	0.05 (1.21)	0.03* (1.66)	0.01 (1.06)	0.02 (1.51)	0.01 (1.07)	-0.00 (-0.05)	-0.01 (-0.42)	-0.01 (-0.50)	0.27 (1.16)	0.04** (2.30)	0.03** (2.41)
Military expenditure	-0.00 (-0.76)	-0.00 (-0.76)	-0.00 (-0.65)	-0.00 (-0.57)	-0.00 (-1.28)	-0.00 (-0.68)	0.00 (0.31)	0.00 (0.00)	-0.00 (-0.08)	-0.00 (-1.43)	-0.00 (-1.43)	-0.00 (-0.48)
Sporting success	0.06 (1.48)	0.04 (1.45)	0.01 (0.65)	0.01 (1.42)	0.00 (0.74)	0.00* (1.79)	0.02 (0.55)	0.02 (0.96)	0.00 (0.50)	0.08 (0.93)	0.01** (2.05)	0.01** (2.50)
Transparency	0.13 (0.68)	0.07 (0.63)	0.09 (1.20)	0.03* (1.84)		0.02 (1.62)	0.15 (0.98)	0.10 (0.86)	0.04 (0.76)	-0.17 (-0.45)	0.01 (0.34)	0.00 (0.10)
CO_2 emissions	-0.34 (-0.20)	-0.26 (-0.30)	-0.17 (-0.31)	-0.02 (-0.12)	0.21 (0.69)		-0.17 (-0.15)	-0.24 (-0.36)	0.11 (0.31)	-0.99 (-0.31)	-0.31 (-1.55)	-0.29** (-2.05)
Particle emissions	-0.00 (-0.22)	-0.00 (-0.28)	-0.01 (-1.22)	0.00 (0.22)	-0.01* (-1.76)	0.00 (0.66)	0.01 (0.50)	-0.03* (-2.08)	-0.01* (-2.07)	-0.08 (-1.49)	-0.01** (-2.32)	-0.00* (-1.86)
Continental rotation	1.88** (2.29)	1.00** (2.34)	0.09 (0.94)	0.09 (1.33)	-0.02 (-0.35)	0.02 (0.42)	1.16* (1.71)	-0.08 (-0.44)	-0.09 (-0.98)	2.78* (1.71)	0.15 (1.48)	0.05 (0.74)
Constant	-4.69** (-2.30)	-2.53** (-2.35)	0.35 (0.49)	-0.01 (-0.07)	0.43* (1.79)	-0.07 (-0.65)	-3.10** (-1.99)	1.22 (1.13)	0.53 (0.95)	-2.65 (-0.63)	0.35 (1.22)	0.19 (0.91)
N	81	81	81	81	81	81	44	44	44	37	37	37

Note: Due to missing values, regressions excluded five observations: Yugoslavia (1996), Puerto Rico (2004), Cuba (2008, 2012), and Andorra (2010).
* significance at around 10% level; ** significance at around 5% level

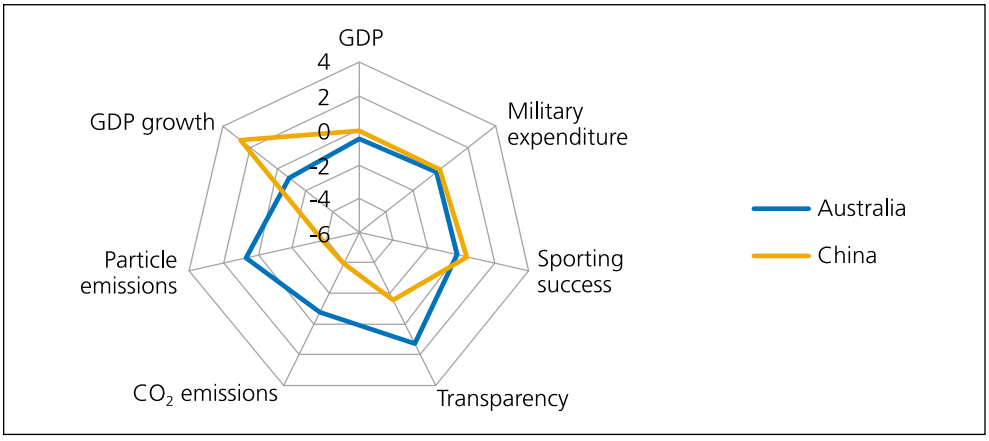
DISCUSSION AND CONCLUSIONS

According to the results of the analysis, all soft-power-related variables had a statistically significant impact on the bid results, supporting the main hypothesis of this paper that the host country's soft power can be a strong factor in winning an Olympic bid. For instance, the United Kingdom (for the 2012 Olympics) and Canada (for 2010) had the highest values for *transparency* of all competitors.

In contrast, as components of countries' hard power, *military expenditure* was not significant at all in any model, and *GDP* paradoxically had no significant effect on the

success of bids. This result makes sense when we consider that the United States and China, although superpowers, have not always won their bids. For instance, as demonstrated in figure 5, China (with a larger GDP) lost the 2000 Olympics to Australia, whose soft power was much higher than China's (with the exception of sporting success measured by the number of gold medals won in the 1992 Summer and 1992 Winter Olympics). In fact, Sydney appeared to be the city that best manifested the three elements of Olympism: sports, culture, and the environment (White, 2011, p. 1451).

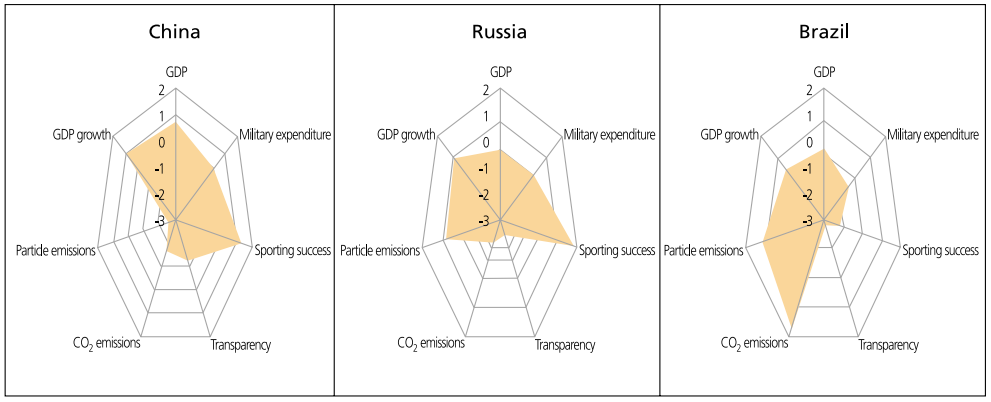
Figure 5. Hard and Soft Power of China and Australia (for the 2000 Olympic Bid)



Note: Values for each variable were standardized as z-scores and displayed on each axis. In order to be directionally consistent with the other indicators, values of CO2 and particle (PM10) emissions were reversed with opposite signs.

However, the IOC has also preferred, in the past, countries with better economic performance in terms of GDP growth rate. The economic considerations of the IOC include a candidate's financial ability to stage the games, and monetary profitability from the potential host market. As shown in figure 6, countries with emerging markets—such as China (for the 2008 Olympics), Russia (for 2014), and Brazil (for 2016)—have recently been chosen by the IOC. Interestingly, China and Russia had high sporting power while Brazil had low emissions, which can be interpreted as indicating the importance of soft power. This suggests that hard power alone (GDP, GDP growth rate, and military expenditure) is not sufficient to win an Olympic bid. In this regard, Nye (2008) went one step further and argued for the need to deploy "smart power," which is the ability to combine hard and soft power effectively. For example, China's bid campaign linked economic development to Olympism (Haugen, 2005), and Brazil used media strategies that framed the bid with Olympic-related developments (Carey et al., 2011).

Figure 6. Hard and Soft Power of China (for 2008), Russia (for 2014), and Brazil (for 2016)



Note: Values for each variable were standardized as z-scores and displayed on each axis. In order to be directionally consistent with the other indicators, values of CO_2 and particle (PM10) emissions were reversed with opposite signs.

The *continental rotation* variable (which represents the goal of not hosting the Olympics on the same continent twice in a row) contributed substantially to *host success*. This means that the IOC tends not to choose countries from the same continent for two Games in a row. For instance, in July 2003, when deciding on the host country of the 2010 Winter Olympic Games, IOC members considered that the next games were to be held in Europe (Athens in 2004 and Turin in 2006) and Asia (China in 2008), which influenced the decision to award the 2010 Winter Olympics to the city of Vancouver in Canada (Slack & Parent, 2006, p. 258).

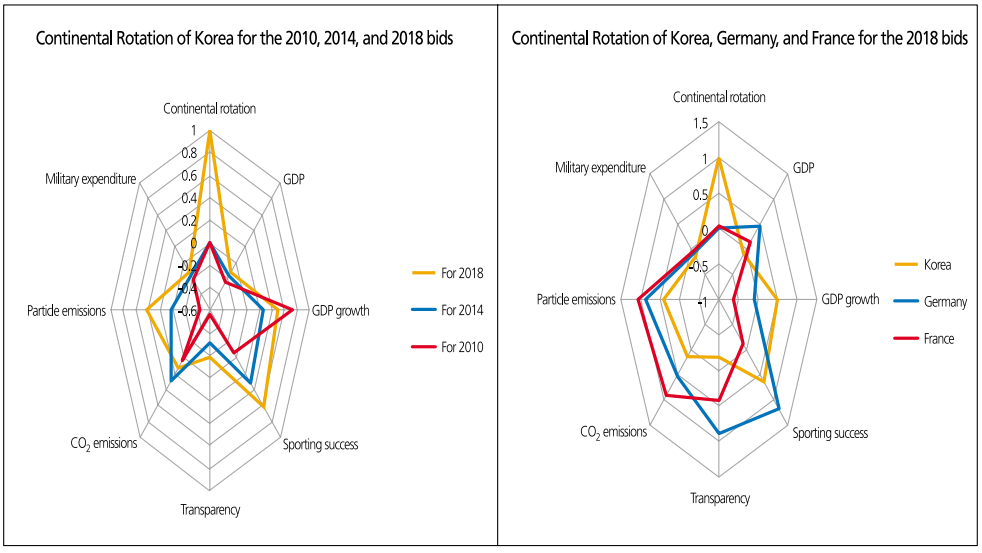
Therefore, it can be concluded that IOC members have taken the principle of continental rotation into account in their decision-making, despite the fact that it is not an official rule but an informal consensus.[3] Therefore, countries need to time their bids appropriately to appeal to the IOC's continental rotation rule, or to the spirit of Olympism and the legitimacy of spreading the Olympic movement and the games throughout as many regions of the world as possible. For instance, a main selling point of Rio de Janeiro's bid was that the Summer Games had never been held in South America (although they were held many times in North America, including Mexico in 1968).

The rotation principle is best illustrated by the successful bid of PyeongChang in Korea, which had been defeated in two consecutive Olympic Winter Games bids, by

3. Based on Nye's (2004) argument that even nonstate actors such as international organizations frequently wield soft power, it could be argued that the IOC enhances its legitimacy by following the continental rotation rule, thus increasing its soft-power influence.

Vancouver for 2010 and Sochi for 2014. In its 2011 bid for the 2018 Winter Games, the Korean bid committee used the slogan New Horizons to acquire Olympic legitimacy in the eyes of the IOC, and emphasized its Drive the Dream Projects, in which the Korean government supported winter sports in developing/emerging countries (Merkel & Kim, 2012). This strategy appealed to the IOC by suggesting that the 2018 Winter Games should be hosted in Asia, not in Europe (two key competitors were France and Germany).[4] Figure 7 illustrates the impact of continental rotation on the results of Korea's bid to host the 2010, 2014, and 2018 Winter Games. In contrast with

Figure 7. Effect of the Continental Rotation Principle on Korea's Olympic Bids



Note: Values for each variable were standardized as z-scores and displayed on each axis. In order to be directionally consistent with the other indicators, values of CO_2 and particle (PM10) emissions were reversed with opposite signs.

4. This strategy was enhanced when Yu-Na Kim, the 2010 Winter Olympic gold medalist in figure skating, participated in the final phase of the bid process and told the IOC that staging the Winter Olympics in Korea would be her personal dream come true and would inspire young athletes in Korea and the Asian region, where winter sports are not as developed as in Europe and North America (Lee, 2011). Another contender, Munich, Germany, also had a figure skater, double Olympic champion Katarina Witt, as the chairperson of its organizing committee, indicating the important lobbying role of popular sports stars. Korea's win over Germany sheds light on the interaction of the continental rotation rule with a country's sporting success—wielding soft power via "message" coupled with "messenger" (Nye, 2004). A receiver's behavior can be changed when both the content of the message and the sender are tailored to appeal to the receiver (Sohn, 2011, p. 80).

the country's 2010 and 2014 bids, for which continental rotation was not a supporting factor, only Korea benefited from this principle in the bidding for 2018.

In conclusion, this study suggests that soft power is effective in long-term participation in international cooperative systems such as the Olympics. These conclusions should be interpreted cautiously because of several statistically weak results at the conventional significance level, presumably due to the relatively small sample size. Nevertheless, it is significant that the directions of signs were consistent in all models. In general, soft-power factors were more important than hard-power factors: among the latter, the only significant factor was GDP growth rate, whereas all soft-power-related variables had significant impacts on bid success between 1990 and 2011. The continental rotation rule also affected IOC decision-making, by both constraining a "hard power takes all" approach and facilitating bid countries' soft-power persuasion strategies.

The empirical results of this study have several implications regarding the impact of soft power on the choice of Olympic host city. First, a high number of Olympic medals won by world-popular athletes can attract IOC members in favor of a country's bid. Second, a country's ethical reputation is likely to persuade the IOC to choose it as the rightful host country. Third, the environmental efforts of a country may also be regarded as a desirable value by IOC members, who prefer a 'Green Games' ecological legacy.

Therefore, the well-known Olympic motto of *citius, altius, fotius* (faster, higher, stronger), which refers to athletic competition, can also refer to the competition between countries to host the games, with a slight modification: faster (in economic growth), higher (in Olympic legitimacy), and "softly" stronger (in soft power).

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APPENDIX: INTERNATIONAL OLYMPIC COMMITTEE VOTES

Year of bid	Winning bid	Bid countries	Round					IOC rank	IOC votes
			1st	2nd	3rd	4th	5th		
2011	2018 Winter PyeongChang, Korea	Korea	63					1	0.663157895
		Germany	25					2	0.263157895
		France	7					3	0.073684211
2009	2016 Summer Rio de Janeiro, Brazil	Brazil	26	46	66			1	0.480836237
		Spain	28	29	32			2	0.31010453
		Japan	22	20	–			3	0.146341463
		United States	18	–	–			4	0.06271777
		Azerbaijan						7	0
		Qatar						7	0
		Czech Republic						7	0
2007	2014 Winter Sochi, Russia	Russia	34	51				1	0.440414508
		Korea	36	47				2	0.430051813
		Austria	25	–				3	0.129533679
		Kazakhstan						7	0
		Georgia						7	0
		Spain						7	0
		Bulgaria						7	0
2005	2012 Summer London, United Kingdom	United Kingdom	22	27	39	54		1	0.351485149
		France	21	25	33	50		2	0.319306931
		Spain	20	32	31	–		3	0.205445545
		United States	19	16	–	–		4	0.086633663
		Russia	15	–	–	–		5	0.037128713
		Germany						9	0
		Brazil						9	0
		Turkey						9	0
		Cuba						9	0
2003	2010 Winter Vancouver, Canada	Canada	40	56				1	0.444444444
		Korea	51	53				2	0.481481481
		Austria	16	–				3	0.074074074
		Andorra						8	0
		Switzerland						8	0
		China						8	0
		Spain						8	0
		Bosnia-Herzegovina						8	0
2001	2008 Summer Beijing, China	China	44	56				1	0.483091787
		Canada	20	22				2	0.202898551
		France	15	18				3	0.15942029
		Turkey	17	9				4	0.125603865
		Japan	6	–				5	0.028985507
		Thailand						10	0
		Egypt						10	0
		Cuba						10	0
		Malaysia						10	0
		Spain						10	0

1999	2006 Winter Turin, Italy	Italy Switzerland Finland Austria Slovakia Poland	53 36 – – – –					1 2 6 6 6 6	0.595505618 0.404494382 0 0 0 0
1997	2004 Summer Athens, Greece	Greece Italy South Africa Sweden Argentina Turkey France Brazil Russia Puerto Rico Spain	32 23 16 20 16	 62 44	38 28 22 19 –	52 35 20 – –	66 41 – – –	1 2 3 4 5 11 11 11 11 11 11	0.439252336 0.296728972 0.135514019 0.091121495 0.037383178 0 0 0 0 0 0
1995	2002 Winter Salt Lake City, USA	United States Sweden Switzerland Canada Austria Spain Slovakia Russia Italy	54 14 14 7					1 2 3 4 9 9 9 9 9	0.606741573 0.157303371 0.157303371 0.078651685 0 0 0 0 0
1993	2000 Summer Sydney, Australia	Australia China United Kingdom Germany Turkey	30 32 11 9 7	30 37 13 9 –	37 40 11 – –	45 43 – – –		1 2 3 4 5	0.401129944 0.429378531 0.098870056 0.050847458 0.019774011
1991	1998 Winter Nagano, Japan	Japan United States Sweden Spain Italy	21 15 18 19 15	 59 29	30 27 25 5 –	36 29 23 – –	46 42 – – –	1 2 3 4 5	0.378917379 0.321937322 0.188034188 0.068376068 0.042735043
1990	1996 Summer Atlanta, USA	United States Greece Canada Australia United Kingdom Yugoslavia	19 23 14 12 11 7	20 23 17 21 5 –	26 26 18 16 – –	34 30 22 – – –	51 35 – – – –	1 2 3 4 5 6	0.348837209 0.318604651 0.165116279 0.113953488 0.037209302 0.01627907

Sources: IOC (2011a) and authors' calculations.